

AMENDMENT TO THE SPECIFICATION

On page 1, kindly delete lines 6-8 under the heading "Cross-Reference to Related Application" and insert the following paragraph in place thereof:

--This application is a divisional of U.S. Serial No. 09/852,255 entitled "Systems and Methods Useful for Detecting Presence and/or Location of Various Materials" filed on May 9, 2001, now allowed, which claims the benefit of U.S. Provisional Application No. 60/203,025 filed on May 9, 2000, the contents of which are incorporated herein by reference.--

On page 12, line 7, kindly insert the following:

--BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1-1 is a block diagram of systems according to an embodiment of the invention.

FIG. 1-2 is a functional block diagram of certain transmitter with known output function according to an embodiment of the invention.

FIG. 1-3 is a functional block diagram of a certain transmitter with magnetic field monitor according to an embodiment of the invention.

FIG. 1-4A is functional block diagram of residual magnetic field nulling using a nulling magnetic field in accordance with an embodiment of the invention.

FIG. 1-4B is a functional block diagram of voltage nulling of residual field sensor output according to an embodiment of the invention.

FIG. 1-5A is a schematic view of a transmitter coil cross section for single wire coil showing sensor position and residual field according to an embodiment of the invention.

FIG. 1-5B is a schematic view of a transmitter coil cross section for normal rectangular coil showing sensor position and residual field according to an embodiment of the invention.

FIG. 1-5C is a schematic view of a transmitter coil cross section for shaped coil showing sensor position and residual field according to an embodiment of the invention.

FIG. 1-6 is a functional block diagram showing a certain gradient sensing using a matched sensor pair according to an embodiment of the invention.

FIG. 1-7 is a schematic view of sensor pair calibration using two transmitter equal coils according to an embodiment of the invention.

FIG. 1-8 is a schematic view of sensor pair calibration using a large solenoid coil according to an embodiment of the invention.

FIG. 1-9 is a functional block diagram of a system with multiple sensor pairs and synchronous detection based on DSP processors according to an embodiment of the invention.

FIG. 1-10 is a schematic view of a time encoded waveform according to an embodiment of the invention.

FIG. 2-1 is a functional block diagram of a synchronous pulse width modulation amplifier according to an embodiment of the invention.

FIG. 2-2 is a schematic view of certain typical pulse width modulation waveforms according to an embodiment of the invention.

FIG. 3-1 is a schematic diagram of a tank circuit of the sort which can be used in embodiments of the invention.

FIG. 3-2 is a schematic diagram of a tank circuit according to an embodiment of the invention.

FIG. 3-3 is a schematic diagram of a tank circuit with series capacitor and inductor according to an embodiment of the invention.

FIG. 3-4 is a schematic diagram of a tank circuit with two resonances according to an embodiment of the invention.

FIG. 3-5 is a schematic diagram of a tank circuit with single frequency blocking circuit according to an embodiment of the invention.

FIG. 3-6 is schematic diagram of a tank circuit with a multiple frequency blocking circuit for N discrete frequencies according to an embodiment of the invention.

FIG. 4-1 is a schematic diagram of certain oscillators according to embodiments of the invention.

FIG. 4-2 is a schematic diagram of a switch network for connecting charge capacitors to load coils according to embodiments of the invention.

FIG. 4-3 is a schematic view of certain switched capacitor circuit waveforms according to embodiments of the invention.

FIG. 4-4 is a schematic diagram of pulse width modulated switched capacitor resonators according to an embodiment of the invention.

FIG. 4-5 is a schematic diagram of certain switched capacitor resonator with integral switching power supplies according to embodiments of the invention.

FIG. 5-1 is a schematic diagram of a sense coil equivalent circuit according to an embodiment of the invention.

FIG. 5-2 is a schematic diagram of an operational amplifier based voltage to current conversion circuit according to an embodiment of the invention.

FIG. 5-3 is a sensitivity diagram according to certain embodiments of the invention.

FIG. 6-1 is a diagram showing a time encoded waveform according to certain embodiments of the invention.

FIG. 6-2 is a diagram of a 4 segment encoded waveform according to certain embodiments of the invention.

FIG. 6-3 is a diagram of a 19 segment encoded waveform according to certain embodiments of the invention.

FIG. 6-4 is a diagram of a 20 segment encoded waveform according to certain embodiments of the invention.

FIG. 6-5 is a diagram of a 22 segment encoded waveform in accordance with certain embodiments of the invention.

FIG. 7-1 is a functional block diagram of local magnetic field generation for residual field cancellation according to certain embodiments of the invention.